What is claimed is:

1. A method for monitoring perceived quality of a packet-switched voice service in a network, the method comprising:

receiving a packetized voice communication via the packet-switched voice service;

obtaining at least one objective measurement from the received packetized voice communication;

deriving user perceived quality of voice data from the at least one objective measurement; and

providing the user perceived quality of voice data, the steps of receiving, obtaining, deriving, and providing being performed in real-time.

2. The method of claim 1, further comprising:

providing an N dimensional reference matrix that mathematically models likely user perception of acceptable quality of voice service, the reference matrix being derived from a plurality of objective voice measurements known to affect user perception of voice quality, wherein N is greater than or equal to two;

obtaining a plurality of test measurements for each call placed over the packet-switched voice service;

creating a test matrix from the plurality of test measurements; and

processing the test matrix, in real-time, to determine the quality of voice data over the packet-switched voice service, the quality of service being determined by comparing the reference matrix to the test matrix.

3. The method of claim 2, further comprising the step of generating at least one alarm in response to the step of processing, the alarm being generated if the quality of voice over the packet-switched voice service is below a predetermined level.

4. The method of claim 3, further comprising the step of displaying the at least one alarm in near real time.

5. The method of claim 4, wherein the step of displaying further comprises:

displaying a human readable description of the at least one alarm; and

displaying a cumulative distribution function (CDF) matrix, the CDF matrix being derived from the test data matrix; and

displaying at least one indicator of likely user perception of the quality of voice carried over the packet-switched voice service.

6. The method of claim 5, wherein the human readable description includes an origin/destination pair associated with the test data matrix, and a date and time associated with the creation of the test data matrix.

7. The method of claim 2, wherein the step of providing further comprises:

measuring the plurality of objective voice characteristics over a packet-switched voice service to obtain sample measurements;

post-processing the sample measurements to produce stable estimates of perceived voice quality; and

creating the reference matrix from the post-processed performance data.

8. The method of claim 2, wherein the step of processing further comprises the step of creating a reference pattern matrix, the reference pattern matrix embodying a comparison of the test data matrix and the reference matrix.

9. The method of claim 8, wherein the step of processing further comprises the step of creating a cumulative matrix, the cumulative matrix being created by summing each row, step-by-step, such that each element in the row is a sum of all preceding elements.

10. The method of claim 9, wherein the step of processing includes the step of deriving a cumulative distribution function (CDF) matrix from the cumulative matrix, the CDF

matrix being created by dividing each element in each row of the cumulative matrix by the largest value in each row of the cumulative matrix.

11. The method of claim 10, wherein the step of processing includes the step of comparing each element of the CDF matrix with each corresponding element of the reference matrix to create a reference pattern matrix.

12. The method of claim 11, wherein an element of the reference pattern matrix is populated with a zero value when either a corresponding value of the CDF matrix is zero, or if the corresponding value of the CDF matrix is greater than a predetermined value.

13. The method of claim 11, wherein an element of the reference pattern matrix is populated with a value of one (1) if the corresponding value of the CDF matrix is less than a predetermined value.

14. The method of claim 2, wherein the step of processing further comprises the step of computing a mean opinion score (MOS) corresponding to a subjective user evaluation of the quality of voice over the packet-switched voice service.

15. The method of claim 14, wherein the step of processing further comprises the step of computing a percentage of calls users would find unusable, difficult, or irritating P(UDI), the P(UDI) corresponding to a subjective user evaluation of the quality of voice over the packet-switched voice service.

16. The method of claim 2, further comprising the step of storing the test data matrix and associated data created during the step of processing.

17. The method of claim 2, further comprising the step of defining a data structure for collecting and archiving annotated test data matrices.

18. The method of claim 17, wherein the data structure includes an identification of the packet-switched voice service associated with a test data matrix, data corresponding to the test data matrix, and a time and a date the test data matrix was created.

19. The method of claim 2, wherein the plurality of test measurements include measurements of the plurality of objective voice characteristics.

20. The method of claim 19, wherein the plurality of test measurements include measurements of a dropped packet rate (DPR) and round trip packet latency (RTL).

21. The method of claim 1, wherein the step of obtaining includes the step of obtaining at least one objective measurement of a reconstituted digital representation of the received packetized voice communication, the reconstituted digital representation being obtained from a receiver codec.

22. The method of claim 21, wherein the at least one objective measurement includes determining differences among successive samples in the reconstituted digital representation.

23. The method of claim 22, wherein the step of providing includes the step of transmitting the user perceived quality of voice data to a quality indicator disposed in a user transceiver set.

24. The method of claim 22, wherein the step of providing includes the step of transmitting the user perceived quality of voice data to a network management system.

25. The method of claim 22, wherein the step of providing includes the step of providing a raw distortion measurement.

26. The method of claim 22, wherein the step of providing includes the step of providing a normalized score corresponding to the distortion measurement.

27. The method of claim 22, wherein the step of providing includes the step of determining a kurtosis value of a distribution of the differences.

28. A system for monitoring the quality of a packet-switched voice service in a network, the system comprising:

a memory element configured to store an N dimensional reference matrix that mathematically models likely user perception of acceptable quality of voice service, the reference matrix being derived from a plurality of objective voice measurements known to affect user perception of voice quality, wherein N is greater than or equal to two;

a measurement probe configured to obtain a plurality of test measurements for each call placed over the packet-switched voice service; and

a computer coupled to the memory element and the measurement probe, the computer being programmed to,

derive a test matrix from the plurality of test measurements, and

process the test matrix, in near real time, to determine the quality of voice over the packet-switched voice service, the quality of service being determined by comparing the reference matrix to the test matrix.

29. The system of claim 28, further comprising a network maintenance system coupled to the computer, the network maintenance facility being configured to generate at least one alarm in response to an input received from the computer, the alarm being generated if the quality of voice over the packet-switched voice service is determined to be below a predetermined level.

30. The system of claim 29, wherein the network maintenance system further comprises at least one display, the at least one display being configured to display the at least one alarm in near real time.

31. The system of claim 29, further comprising a graphical user interface including a display and a selection device, the graphical user interface being configured to perform a method for displaying alarms on the display, the method including:

displaying a human readable description of the at least one alarm in near real time;

displaying a cumulative distribution function (CDF) matrix, the CDF matrix being derived from the test data matrix; and

displaying at least one indicator of likely user perception of the quality of voice carried over the packet-switched voice service.

32. The system of claim 31, wherein the human readable description includes an origin/destination pair associated with the test data matrix, and a date and time associated with the creation of the test data matrix.

33. The system of claim 28, wherein the computer is further programmed to create a reference pattern matrix, the reference pattern matrix embodying a comparison of the test data matrix and the reference matrix.

34. The system of claim 33, wherein the computer is further programmed to create a cumulative matrix, the cumulative matrix being created by summing each row, step-by-step, such that each element in the row is a sum of all preceding elements.

35. The system of claim 34, wherein the computer is further programmed to derive a cumulative distribution function (CDF) matrix from the cumulative matrix, the CDF matrix being created by dividing each element in each row of the cumulative matrix by the largest value in each row of the cumulative matrix.

36. The system of claim 35, wherein the computer is further programmed to compare each element of the CDF matrix with each corresponding element of the reference matrix to create a reference pattern matrix.

37. The system of claim 36, wherein an element of the reference pattern matrix is populated with a zero value when either a corresponding value of the CDF matrix is zero, or if the corresponding value of the CDF matrix is greater than a predetermined value.

38. The system of claim 36, wherein an element of the reference pattern matrix is populated with a value of one (1) if the corresponding value of the CDF matrix is less than a predetermined value.

39. The system of claim 28, wherein the computer is further programmed to compute a mean opinion score (MOS) corresponding to a subjective user evaluation of the quality of voice over the packet-switched voice service.

40. The system of claim 28, wherein the computer is further programmed to compute a percentage of calls users would find unusable, difficult, or irritating P(UDI), the P(UDI) corresponding to a subjective user evaluation of the quality of voice over the packet-switched voice service.

41. The system of claim 28, wherein the computer is further programmed to store the test data matrix and associated data created during the step of processing.

42. The system of claim 28, wherein the computer is further programmed to collect and archive annotated test data matrices in a data structure.

43. The system of claim 42, wherein the data structure includes an identification of the packet-switched voice service associated with a test data matrix, data corresponding to the test data matrix, and a time and a date the test data matrix was created.

44. The system of claim 28, further comprising a data base configured to store reference matrices, test measurements, and/or test matrices.

45. In a computer system having a graphical user interface including a display and a selection device, a method for monitoring the quality of a packet-switched voice service, the method comprising:

receiving an alarm signal from the computer system, the alarm signal being generated in response to determining that the quality of voice over the packet-switched voice service is below a predetermined level;

displaying a message in response to receiving the alarm signal;

selecting an amplifying display icon with the selection device;

displaying a human readable description of the alarm signal in response to the step of selecting; and

displaying at least one indicator of likely user perception of the quality of voice carried over the packet-switched voice service.

46. The method of claim 45, wherein the at least one indicator includes a mean opinion score (MOS).

47. The method of claim 45, wherein the at least one indicator includes a percentage of calls users would find unusable, difficult, or irritating P(UDI), the P(UDI) corresponding to a subjective user evaluation of the quality of voice over the packet-switched voice service.

48. The method of claim 45, wherein the at least one indicator includes a distortion indicator.

49. A system for monitoring the quality of a packet-switched voice service in a network, the system comprising:

a measurement device configured to obtain at least one objective measurement from a packetized voice communication, the at least one objective measurement being obtained in real-time;

a processor coupled to the measurement device, the processor being configured to derive user perceived quality of voice data from the at least one objective

measurement and provide the user perceived quality of voice data in real-time.

50. A method for monitoring perceived quality of a packet-switched voice service in a network, the method comprising:

providing an N dimensional reference matrix that mathematically models likely user perception of acceptable quality of voice service, the reference matrix being derived from a plurality of objective voice measurements known to affect user perception of voice quality, wherein N is greater than or equal to two;

obtaining a plurality of test measurements for each call placed over the packet-switched voice service;

creating a test matrix from the plurality of test measurements; and

processing the test matrix, in near real time, to determine the quality of voice data over the packet-switched voice service, the quality of service being determined by comparing the reference matrix to the test matrix.